CSCAPE 2005: NOAA Ship *David Starr Jordan*
Weekly Science Report – Leg 6
10 November 2005, Sarah L. Mesnick – Cruise Leader

SCIENCE SUMMARY: 3 November 2005 - 9 November 2005

This weekly begins with us running over the border into California and tucking ourselves below Pt. Arena to avoid a large Pacific Northwest storm system. We regretted turning our back to these northern lines but the satellite TV reports of 70++ knot winds along the Oregon trackline that we had just left made the decision easier. We spent the rest of the week alternating between weather days and survey days in the offshore waters of central California. The trackline took us from 75nm offshore of Cape Mendocino to the southwestern boundary of the study area at the latitude of Pt. Conception, where we turned, and are now surveying trackline to the southeast.

While the skies have been filled with every type of cloud in the weather book ("chaotic skies"), animal density in these offshore waters is low. At night, the bongo tows bring up scant zooplankton from the depths. By day, the flying bridge is quiet. The most frequent sightings this week were single and mixed species groups composed predominantly of short-beaked common dolphin (including a few individuals with anomalous color patterns) and a handful, sometimes more, of striped dolphin. As Susan Chivers mentioned a few weeks ago, in these mixed species groups we often observe striped dolphins bow riding. While striped dolphins are frequent bow riders in the Atlantic, we have not recorded this behavior in the eastern tropical Pacific. During CSCAPE, the striped dolphins typically come in to the bow after the common dolphins have been riding for some time, and sometimes replace them entirely. Or, they may approach the ship, but remain just outside the bow riding common dolphins, following along. Our single sighting this week of a pure group was typical of the ETP – "streakers" running hard away from the ship. See the Photo Report below for illustrations and more details.

This week, we also had single sightings of fin and sei whales, and a ziphiid. Killer whales were sighted once, but as we approached, the animals dove and disappeared. They were heard on the bow-mounted hydrophone in the near vicinity for quite some time, but not seen again despite a long search by the full complement of observers.

Like marine mammals, bird density was also low and relatively few bird sightings were recorded. Thanks to Leg 6 Acting Operations Officer/Port Captain, Lundy Pixton, she generously donated her time to help us plot the closest point of land for our *Pterodroma* petrels and Red-tailed Tropicbirds. These data will help to determine whether the sightings fall within North American waters (200nm from land).

Social highlights for the week included an over-the-top steak and crab BBQ on the back deck. Master at-sea chef, Lito Llena, and sous chef, Mike Sapien, continue to outdo themselves each day. A game of MURDER is on going, with five victims so far, and the murderer still at large.

This weekly ends as it began, with us in the midst of yet another low pressure system. We hope to run beyond it tonight and emerge in calm seas to begin the third week of Leg 6. Stay tuned as we turn and head into San Francisco.

Sightings and Effort Summary for Marine Mammals

110305			0.0 nmi	6.0++
110405	0715	N39:01.64 W125:02.88	53.8 nmi	3.7
	1547	N37:58.61 W125:28.80		
110505	0657	N36:15.60 W125:58.52	88.8 nmi	3.7
	1708	N34:43.36 W126:26.33		
110605	0658	N34:43.15 W126:30.05	80.0 nmi	3.0
	1717	N33:24.04 W126:31.36		
110705	0654	N33:24.14 W126:29.50	90.9 nmi	4.4
	1709	N32:59.53 W124:39.95		
110305			0.0 nmi	6.0++
110905	0646	N32:49.61 W123:52.49	44.0 nmi	5.3
	1321	N32:38.94 W122:52.92		

CODE	SPECIES	TOT#
013	Stenella coeruleoalba	5
017	Delphinus delphis	8
037	Orcinus orca	1
049	ziphiid whale	1
070	Balaenoptera sp.	2
073	Balaenoptera borealis	1
074	Balaenoptera physalus	1
077	unid. dolphin	3
079	unid. large whale	2
096	unid. cetacean	1

Biopsies (Gary Friedrichsen and Laura Morse)

Species	3 – 9 Nov	CSCAPE cumulative
Minke whale		1
Humpback whale		21
Blue whale		8
Fin whale		1
Sperm whale		11
Baird's beaked whale		2
Short-beaked common dolphin	16	127

Pacific white-sided dolphin		25
Northern right whale dolphin		10
Striped dolphin		2
Dall's porpoise		16
Killer whale		5
Risso's dolphin		4
All Species	16	233

"Frozen Zoo" project/Cell-culture report (Laura Morse and Nicole Hedrick)

Species	3 Nov – 9 Nov	CSCAPE cumulative
Blue whale		1
Baird's beaked whale		1
Pacific white-sided dolphin		1
Striped dolphin		1
Dall's porpoise		1
All Species		5

Photo-Project (Cornelia Oedekoven, Holly Fearnbach and Kathy Hough)

Outside the dolphins, only one single Sei whale let us close enough to take its picture. The one killer whale sighting we had 'pulled a Houdini' (quote Kathy Hough) on us after we came within one nautical mile of them. Therefore, most of the photographic action evolved around the dolphin schools. The short-beaked common dolphins were generally friendly, approaching the ship and riding the bow. When the schools were mixed – short-beaked common and striped dolphins together – it was apparent that the common dolphins were generally the first ones to make the approach. It also seemed like the greater the percentage of striped dolphin in a school, the more frequently striped dolphins ran away from the ship. An extreme case was observed when a school of only striped dolphins ran away from the ship during the entire sighting. When both species were riding the bow together, the size differences between adults of the two were obvious.

Comparing the various pictures of striped dolphins, one of the variations in color pattern between individuals is obvious: the light blaze starting over the eye and reaching into the dark cape varies highly with length. The first picture below shows an example of a very long blaze that reaches almost all the way to the dorsal fin. The second picture is an example of a very short blaze. This feature likely represents phenotypic variation within the population.

A striped and a short-beaked common dolphin riding the bow together. The striped dolphin is an example of the long blaze (photo: Rich Pagen).

Striped dolphin displaying a very short light blaze, i.e. the light gray stripe that starts from the light area over the eye and reaches into the dark cape (photo: Kathy Hough).

Species	# Schools Photographed	# Individuals Photographed
Sei whale		**1**
Short-beaked common dolphin	**3**	
Mixed short-beaked common dolphin and striped dolphin	**2**	

Seabird report (Rich Pagen and Thomas Staudt)

This week has been a trip south, much of the time spent cruising through the outer reaches of the study area, often at a distance of more than 200 miles from the California coast. The Fork-tailed Storm-Petrels and Cassin's Auklets at 50 miles off of northern California transitioned into Leach's Storm-Petrels and small groups of Red Phalaropes as we made our way southwest. Other regulars in these outer waters (though all in low numbers) included Black-footed Albatross, Sooty Shearwater and Long-tailed Jaeger. Highlights included the continued presence of Mottled Petrels (a total of 7 recorded), an increase in Cook's Petrels (also 7 recorded) and, just at those times when it seemed like there wasn't a bird within a 50 mile radius of the ship, a calling Red-tailed Tropicbird would swing by (perhaps to make certain that our eyes were indeed open behind the sunglasses - yes, there were a few sightings of the sun out here this week too).

Oceanographic Operations (Candice Hall and Liz Zele)

This is probably the first weekly report in existence that has been written by a 'dead' person! We're playing a game of 'Murder' onboard and I just wrongly accused someone of being the 'killer,' hence 'dying' myself! I must say, it is rather hard being dead, just can't seem to grasp that Bongo…

Talking about killer…winds that is, Figure 1 shows the sudden increase in wind speed that we experienced on the 08 November. A similar intensification of the wind occurred during our CTD (conductivity, temperature, depth) cast on the 03 November. The Bridge was unable to maintain the ship's station, which necessitated the abortion of the cast before all the bottles could be closed. However, we still have the CTD so we're counting that as a successful cast!

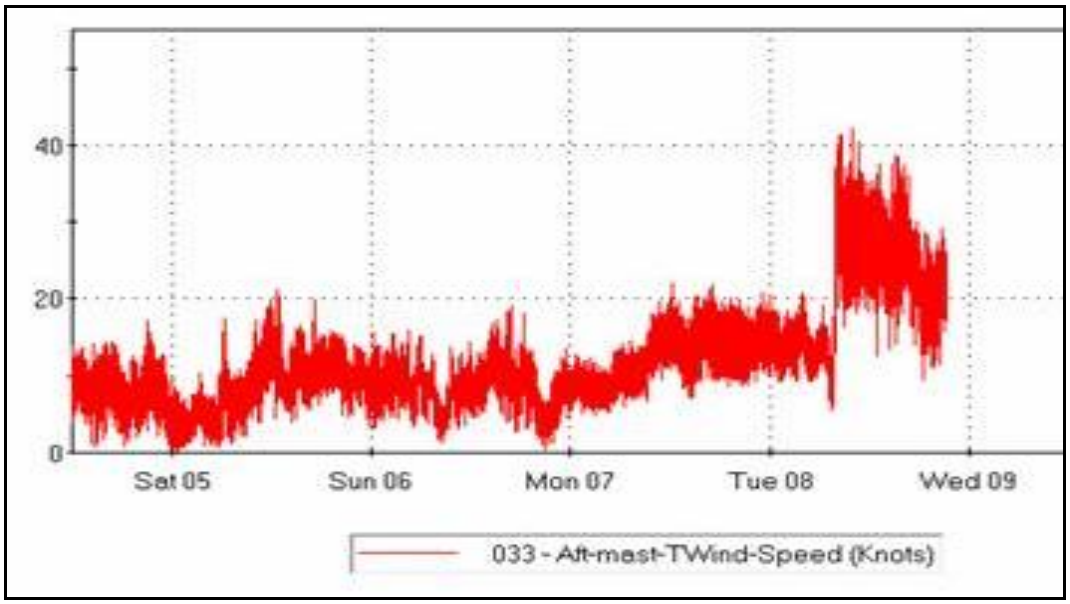

Figure 1: Aft-mast True Wind Speed 04 – 08 November 2005 (courtesy of Lundy Pixton, LTJG, and Sean Finney, ENS).

As mentioned in our last weekly, we've shot down south to avoid the fall storms, leaving the cold, 13 °C (55.4 °F) waters off Oregon. Within two days we'd reached the warm southern Californian waters, where you could feel a definite increase in air temperature due to the warmer 17 – 18 °C (62.6 – 65 °F) water. During our BBQ on Saturday evening we caught a Skipjack Tuna, which (vegetarians, close your eyes) went straight onto the flame. However, this relocation has not abated the swells and winds that plague our survey. But never fear, with this group of ruffians on board, we will not be beaten, we will prevail and science shall prosper!

Date	CTD's	XBT's	Bongo Tows	Comments
11/03	1	2	0	Weather reduced operations.
11/04	2	3	1	
11/05	1	3	1	
11/06	1	3	1	
11/07	1	3	1	
11/08	1	0	1	Weather reduced operations.
11/09	1	3	1	

Quote of the week: 'I see dead people…' (Haley Joel Osmet in *The Sixth Sense*)

Squeakly Report (Liz Zele and Laura Morse)

Sadly, we have not a squeak to report this week! As you have probably read, we have been limited in operations due to rough weather. Laura and I did take the time however to restock and prepare a few more buoys, so we are ready and waiting for opportunities!